REF-A07b STEEL BASEPLATE CONNECTION TO CONCRETE FOR BEAM-COLUMN JOINT

PROJECT	Prestige Mahalakshmi tower Commercial tower C and D
LOCATION	Mumbai, India
CLIENT	Prestige group
DESIGNER	Buro Happold
INSTALLATION	2023

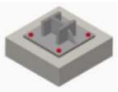
Application	**Baseplate at beam-column joints**
Design std.	**EN 1992-4 (post-installed anchors)**
Hardware	**HSL-4, HST3, HIT-RE 500 V4**
Software	**PROFIS Engineering (anchor to concrete)**
Services	**Workshops, training at jobsite**

CHALLENGES

- ➢ High shear load
- ➢ Seismic approval
- ➢ Dense reinforcement in structure
- ➢ Misplacement of cast-in anchors
- ➢ hanging steel column assembly to support loft

HILTI TOTAL SOLUTION

- ✓ Premium product
- ✓ Both post-installed mechanical and chemical anchors
- ✓ Chemical anchors with Through bolts
- ✓ Design and approval for seismic loading, filling set



LOAD/ CONDITIONS **Static, seismic /misplaced cast-in bolts**

PROJECT HIGHLIGHT **Understanding different applications and strong collaboration with project team**

APPLICATION AND REQUIREMENT

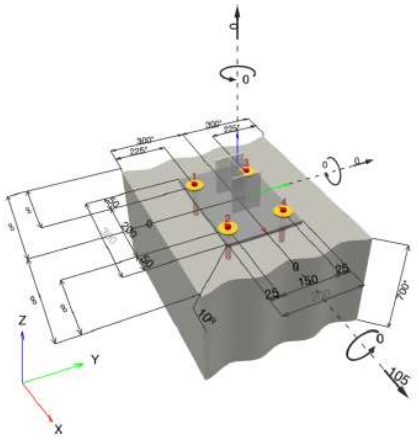
Application Details: Baseplate-beam-column joint

The eccentric core design for tower C as the placement of columns (2.4 m x 2.4 m) is between a span of 10 m and 39.5 m which potentially results in high base shear. For a hanging steel column assembly to support loft on each slab of the Tower D (160 m tall) the scope was given for through bolting anchors to support the built loft around corners and mid-edges.

Inaccessible location for anchors

There was very dense reinforcement detailing that limits drilling depth for all post-installed anchors. Post-installed mechanical anchors with limitation in depth was the solution. Some cast-in anchors got misplaced and designer went for post-installed chemical anchor solution.

APPROACH TOWARDS SOLUTION



PROFIS design for seismic loading, filling set

Since the project is in high seismic zone, requirement was given for post-installed anchors approved for seismic loading. Hilti offered the premium product with Hilti filling set for seismic loading. Hilti filling set helps to improve the resistance by distributing the high shear load equal among all anchors. Most optimized design suitable for the application was submitted and approved.

Post-installed anchors and other tools

- Post-installed mechanical anchors- **Hilti HSL4 and HST3** of **M20x170** and **-Hilti HIT-RE 500 V4** with **HIT V 5.8 M16x150** were used.
- **Through bolting** application was done with **AM rods of class 8.8.**

THE FINAL OUTCOME

Tower C under construction and workshop by Hilti at jobsite